Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims:

Listing of Claims:

1. (Currently amended) A relay server comprising:

communicating means for communicating with a plurality of network devices using TCP/IP connections that are established and held in response to login demands from the plurality of network devices, including a first network device in a first local area network (LAN) and a second network device in a second LAN; and

connection information holding means for holding connection information of a first held TCP/IP connection between the relay server and the first network device and a second held TCP/IP connection between the relay server and the second network device,

wherein the first network device initiates, logs into and establishes the first held TCP/IP connection with the relay server, and the second network device initiates, logs into and establishes the second held TCP/IP connection with the relay server,

wherein the communicating means carries out communication between the first and second network devices by using the first and second held TCP/IP connections, and relays data between the first and second network devices in accordance with connection demand information generated from one of the first and second network devices,

wherein the connection information holding means periodically receives via the first or second held TCP/IP connection a connection holding command from the first or second network device, and a response is communicated to the first or second network device that sent the connection holding command to maintain the first or second held TCP/IP connection.

2. (Currently amended) A communication system comprising:

a plurality of network devices, including at least a first network device in a first local area network (LAN) and a second network device in a second LAN; and

a relay server connected to the plurality of network devices via a network, wherein the first network device initiates, logs into and establishes a first held TCP/IP connection with the relay server, the second network device initiates, logs into and establishes a second held TCP/IP connection with the relay server, and the first network device generates a connection demand for communication with the second network device, and

the relay server relays the communication between the first and second network devices by using the first and second held TCP/IP connections established in advance in accordance with the connection demand from the first network device,

wherein the relay server periodically receives via the first or second held TCP/IP connection a connection holding command from the first or second network device, and the relay server communicates a response to the first or second network device that sent the connection holding command to maintain the first or second held TCP/IP connection.

3. (Previously presented) The communication system according to claim 2 wherein connection to the first network device from outside the first LAN is limited.

4. (Previously presented) The communication system according to claim 2 wherein the first network device is connected to the relay server via a gateway device having an address converting function.

5-7. (Canceled)

8. (Currently amended) A relay server comprising:

a communicating device communicating with a plurality of network devices using TCP/IP connections that are established and held in response to login demands from the plurality of network devices, including a first network device in a first local area network (LAN) and a second network device in a second LAN; and

a connection information holding device holding connection information of a first held TCP/IP connection between the relay server and the first network device and a second held TCP/IP connection between the relay server and the second network device,

wherein the first network device initiates, logs into and establishes the first held TCP/IP connection with the relay server, the second network device initiates, logs into and establishes the second held TCP/IP connection with the relay server,

wherein the communicating device carries out communication between the first and second network devices by using the first and second held TCP/IP connections, and relays data between the first and second network devices in accordance with connection demand information generated from one of the first and second network devices,

wherein the communicating device periodically receives a connection holding command from the first or second network device via the first or second held TCP/IP connection, and the communicating device communicates a response to the first or second network device that sent the connection holding command to maintain the first or second held TCP/IP connection.

9. (Previously presented) The relay server according to claim 8, wherein connection to the first network device from outside the first LAN is limited.

10. (Previously presented) The relay server according to claim 8, wherein the first network device is connected to the relay sever via a gateway device having an address converting function.

11. (Previously presented) The relay server according to claim 8, wherein the relay server is connected to the Internet.

12. (Previously presented) The relay server according to claim 8, wherein the relay server includes a global IP address.

13. (Previously presented) The relay server according to claim 8, wherein the connection information includes a user ID and a password.

14. (Previously presented) The relay server according to claim 1, wherein the relay server is connected to the Internet.

15. (Previously presented) The relay server according to claim 1, wherein the relay server includes a global IP address.

16. (Previously presented) The relay server according to claim 1, wherein the connection information includes a user ID and a password.

17. (Currently amended) A method for communicating between a plurality of network devices and a relay server comprising:

initiating, establishing and holding a TCP/IP connection by each of a plurality of network devices between each of the plurality of network devices and a relay server in response to login demands from the plurality of network devices;

demanding a connection from one of the plurality of network devices to at least one other network device of the plurality of network devices using the relay server; and

relaying a communication between the one network device and the at least one other network device using the held TCP/IP connection between the one network device and the relay server and the held communication path between the at least one other network device and the relay server,

receiving periodically a connection holding command by the relay server from each of the plurality of network devices and communicating a response to each of the plurality of network devices that sent the connection holding command to maintain the held TCP/IP connection.

18. (Previously presented) The communication method according to claim 17 further comprising limiting the connection to the network devices from an outer network.

19. (Previously presented) The communication method according to claim 17 further comprising connecting the network devices to the relay server via a gateway device having an address converting function.

20. (Previously presented) The communication method according to claim 17 further comprising connecting the relay server to the Internet.

21-24. (Canceled)

25. (New) The relay server according to claim 1, wherein the first network device or the second network device transmits a releasing notification such that the

first held TCP/IP connection and the second held TCP/IP connection become vacant connections that are not used in the communication relayed between the first network device and the second network device.

26. (New) The communication system according to claim 2, wherein the first network device or the second network device transmits a releasing notification indicating that the first held TCP/IP connection and the second held TCP/IP connection are vacant connections, wherein the vacant connections are not used in the communication relayed between the first network device and the second network device.

27. (New) The relay server according to claim 8, wherein the the first network device or the second network device transmits a releasing notification indicating that the first held TCP/IP connection and the second held TCP/IP connection are vacant connections, wherein the vacant connections are not used in the communication relayed between the first network device and the second network device.

28. (New) The communication method according to claim 17, further comprising:

transmitting a releasing notification indicating that the held TCP/IP connection is a vacant connection, wherein the vacant connection is not used in the relay communication between the one network device and the at least one network device using the held TCP/IP connection.